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| 10/729,493                   | 12/05/2003  | Sang-hee Kim         | 5649-1201           | 1963             |
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| EXAMINER                     |             |                      |                     |                  |
| VUONG, QUOC HIEN B           |             |                      |                     |                  |
| ART UNIT                     |             | PAPER NUMBER         |                     |                  |
| 2618                         |             |                      |                     |                  |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/729,493

**Applicant(s)**

KIM, SANG-HEE

**Examiner**

Quochien B. Vuong

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 05 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)  
Paper No(s)/Mail Date 12/05/03, 07/11/05
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Information Disclosure Statement*

2. The information disclosure statements (IDS) submitted on 12/05/2003 and 07/11/2005 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

### *Claim Rejections - 35 USC § 112*

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 28-30 recites the limitation "**the** access point" in claim 28, lines 5-6.

There is insufficient antecedent basis for this limitation in the claim.

Claim 29 recites the limitation "**the** distance between the first station and the second station and **the** distance between the first station and the access point" in claim 29, lines 1-3. There is insufficient antecedent basis for this limitation in the claim.

Claim 30 recites the limitation "**the** relative magnitude of the determined distances and **the** absolute distance between the first station and the second station" in claim 30, lines 6-7. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wellig et al. (US 6,580,704).

Regarding claim 28, Wellig et al. (figure 6) disclose a method of determining whether to route communications between a first station and a second station in a wireless local area network using a direct link protocol, comprising determining a received signal strength of a signal sent between the first station and the second station and determining whether to route communications between the first station and the second station in the wireless local area network using the direct link protocol based at least in part on the determined received signal strength (column 10, line 40 – column 13, line 4). Wellig et al. do not disclose determine received signal strength of a signal sent from the first station to the access point in the wireless area network. However, Wellig et al. do disclose establish direct link protocol when the

received signal strength of the signal sent between the first station and the second station is better than a signal level threshold (column 12, lines 51-54). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify the signal level threshold comparison with the received signal strength of the signal sent between the first station and the access point to the method of Werllig et al. in order to ensure the signal quality of direct mode while efficiently utilizing the wireless local area network resource.

7. Claims 1-27, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wellig et al. (US 6,580,704) in view of Grube et al. (US 5,666,661).

Regarding claim 1, Wellig et al. (figure 6) disclose a method of establishing communications between a first station and a second station in a wireless local area network using a direct link protocol by checking the received signal strength between the first and second stations (column 10, line 40 – column 13, line 4) and using the received signal strength measurement to determining a first distance between the first station and the second station (figure 5). Wellig et al. do not disclose determining a second distance between the first station and an access point in the wireless local area network; comparing the first distance to the second distance; and establishing direct link protocol communications between the first station and the second station if the first distance is less than the second distance. However, Wellig et al. do disclose establish direct link protocol when the first station and the second station are close enough (column 10, lines 1-2). And Grube et al. disclose establish a direct mode communication

between a first station and a second station based on the comparison of the distance of the first and second stations with a distance threshold (column 2, lines 15-30; and column 3, lines 1-38). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to adapt the teaching of Grube et al. and further modify the distance threshold comparison with the distance between the first station and the access point to the method of Werllig et al. in order to ensure the signal quality of direct mode while efficiently utilizing the wireless local area network resource.

Regarding claims 2-3, Wellig et al. and Grube et al. disclose the method of claim 1; in addition, it would have been obvious for the threshold distance of Grube et al. be a predetermined multiple or twice of the second distance depending on the system design preference.

Regarding claim 4, Grube et al disclose the network compare the distances (column 3, lines 1-34).

Regarding claims 5-7, Grube et al. disclose transmitting the location of the first station to the access point in the wireless local area network and transmitting the location of the second station to the access point in the wireless local area network; wherein the location of the first station and the location of the second station are periodically transmitted to the access point in the wireless; wherein the location of the first station and the location of the second station are each transmitted to the access point in the wireless local area network in response to a polling request sent by the access point in the wireless local area network (column 3, lines 1-17).

Regarding claim 8, Grube et al. disclose wherein the first station compares the first distance to the second distance (column 3, line 53 – column 4, line 9).

Regarding claims 9-14, it would have been obvious for the method of Wellig et al. and Grube et al. to receiving a frame with location information, storing the location information, and transmitting the location information in order to determine the distances.

Regarding claim 15, Wellig et al. and GRube et al. disclose a computer-readable medium having a computer-executable instructions for performing the steps of claim 1 in order to carry out the method of claim 1 (see the rejection of claim 1 above).

Regarding claim 16, Wellig et al. (figure 6) disclose a method of determining whether to route communications between a first station and a second station in a wireless local area network using a direct link protocol (column 10, line 40 – column 13, line 4) and determining a first distance between the first station and the second station (figure 5). Wellig et al. do not disclose determining a distance between the first station and an access point in the wireless area network; and determining whether to route communications between the first station and the second station in the wireless local area network using the direct link protocol based at least in part on the determined distances. However, Wellig et al. do disclose establish direct link protocol when the first station and the second station are close enough (column 10, lines 1-2). And Grube et al. disclose establish a direct mode communication between a first station and a second station based on the comparison of the distance of the first and second stations with a distance threshold (column 2, lines 15-30; and column 3, lines 1-38). Therefore, it would

have been obvious for one having ordinary skill in the art at the time the invention was made to adapt the teaching of Grube et al. and further modify the distance threshold comparison with the distance between the first station and the access point to the method of Werllig et al. in order to ensure the signal quality of direct mode while efficiently utilizing the wireless local area network resource.

Regarding claims 17 and 18, Grube et al. disclose wherein the distance between the first station and the second station and the distance between the first station and the access point in the wireless area network are determined based on a locational coordinates of the first station, the second station and the access point in the wireless local area network; wherein at least the first station and the second station include a global positioning system receiver for determining the locational coordinates of the respective first station and second station (column 2, lines 31-43).

Regarding claims 19-21, Wellig et al. and Grube et al. disclose the method of claim 16; in addition, it would have been obvious for the threshold distance of Grube et al. be a predetermined multiple or twice of the second distance depending on the system design preference.

Regarding claims 22 and 23, it would have been obvious for the method of Wellig et al. and Grube et al. to receiving a frame with location information, storing the location information, and transmitting the location information in order to determine the distances.

Regarding claim 24, Wellig et al. (figure 1) disclose a wireless local area network (1), comprising: an access point (11); and a plurality of wireless local area network



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stations (12 and 13), each station including a processor for establishing communications between a first station and a second station using a direct link protocol by checking the received signal strength between the first and second stations (column 10, line 40 – column 13, line 4) and using the received signal strength measurement to determining a first distance between the first station and the second station (figure 5). Wellig et al. do not disclose wherein each station comprising a location tracking device; wherein the processor determines a distance between the station and a second of the stations in the wireless local area network and a distance between the station and the access point, wherein the processor determines based on the respective distances between the station and the second station in the wireless local area network and between the station and the access point whether to establish direct link protocol communications between the station and the second station in the wireless local area network. However, Wellig et al. do disclose establish direct link protocol when the first station and the second station are close enough (column 10, lines 1-2). And Grube et al. disclose each station comprising a location tracking device; wherein the processor determines a distance between the station and a second of the stations in the wireless local area network, wherein the processor determines based on the respective distances between the station and the second station in the wireless local area network and a threshold distance and the access point whether to establish direct link protocol communications between the station and the second station in the wireless local area network (column 2, lines 15-30; and column 3, lines 1-38). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made

to adapt the teaching of Grube et al. and further modify the distance threshold comparison with the distance between the first station and the access point to the method of Werllig et al. in order to ensure the signal quality of direct mode while efficiently utilizing the wireless local area network resource.

Regarding claim 25, Grube et al. disclose wherein the location tracking device comprises a global positioning system receiver (column 2, lines 40-43).

Regarding claim 26, Grube et al. disclose wherein processor elects to establish direct link protocol communications between the station and the second station in the wireless network if the distance between the station and the second station in the wireless local area network is less than the distance between the station and the access point. (column 3, lines 1-38).

Regarding claim 27, Wellig et al. and Grube et al. disclose the method of claim 24; in addition, it would have been obvious for the threshold distance of Grube et al. be a predetermined multiple of the second distance depending on the system design preference.

Regarding claim 29, Wellig et al. disclose the method of claim 28; in addition, Wellig et al. disclose determining a distance between the first station and the second station (figure 5). Wellig et al. do not disclose determine a distance between the first station and the access point in the wireless area network, and wherein the determination whether to route communications between the first station and the second station in the wireless local area network using the direct link protocol is further based on the determined distances. However, Wellig et al. do disclose establish direct

link protocol when the first station and the second station are close enough (column 10, lines 1-2). And Grub et al. disclose establish a direct mode communication between a first station and a second station based on the comparison of the distance of the first and second stations with a distance threshold (column 2, lines 15-30; and column 3, lines 1-38). Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to adapt the teaching of Grub et al. and further modify the distance threshold comparison with the distance between the first station and the access point to the method of Werllig et al. in order to ensure the signal quality of direct mode while efficiently utilizing the wireless local area network resource.

Regarding claim 30, it is obvious for the method of Wellig et al. and Grube et al. to comprises determining whether to route communications between the first station and the second station in the wireless local area network using the direct link protocol based on both a relative magnitude of the determined distances and an absolute distance between the first station and the second station since they are just the values for indicating the distances.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quochien B. Vuong whose telephone number is (571) 272-7902. The examiner can normally be reached on M-F 9:30-18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quochien B Vuong/  
Primary Examiner, Art Unit 2618